

WHAT IS CLAIMED IS:

1. A semiconductor device, comprising:
a light-receiving element having a light-receiving face formed on a main surface of a semiconductor substrate;
an antireflection coating formed so as to cover the light-receiving face of said light-receiving element, and formed by a prescribed layer for preventing reflection of incident light;
a protection film formed on said antireflection coating and protecting said antireflection coating; and
a mold material formed on said semiconductor substrate so as to directly cover said protection film.
2. The semiconductor device according to claim 1, wherein said protection film has an index of refraction different from that of said mold material by at most 0.3.
3. The semiconductor device according to claim 1, wherein said protection film includes a silicon oxide film.
4. The semiconductor device according to claim 1, wherein said protection film includes a polyimide-based resin.
5. The semiconductor device according to claim 1, further comprising a signal processing circuit portion for processing a prescribed signal, formed in a region of said semiconductor substrate different from a region where said light-receiving element is formed.
6. The semiconductor device according to claim 5, further comprising a first insulating film formed so as to cover said signal processing circuit portion, wherein
said protection film includes a film formed with a layer identical to said first insulating film.

7. The semiconductor device according to claim 6, further comprising a first interconnection formed on said semiconductor substrate with a second insulating film interposed, wherein

5 said protection film includes a film formed with a layer identical to said second insulating film.

8. The semiconductor device according to claim 7, further comprising a third insulating film formed so as to cover said first interconnection, wherein

5 said protection film includes a film formed with a layer identical to said third insulating film.

9. The semiconductor device according to claim 8, further comprising a second interconnection formed on said third insulating film, and a fourth insulating film formed so as to cover said second interconnection, wherein

5 said protection film includes a film formed with a layer identical to said fourth insulating film.

10. An optical device comprising a semiconductor device according to claim 1.